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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,698	03/19/2004	B. Ryland Wiggs	50082/40002US	9146
57726 7590 06/11/2008 MILLER, MATTHIAS & HULL ONE NORTH FRANKLIN STREET SUITE 2350 CHICAGO, IL 60606				
EXAMINER				
NALVEN, EMILY IRIS				
ART UNIT		PAPER NUMBER		
3744				
MAIL DATE		DELIVERY MODE		
06/11/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/804,698

Applicant(s)

WIGGS, B. RYLAND

Examiner

EMILY I. NALVEN

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 81-96 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 81-96 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Receipt of applicant's amendment filed on May 22, 2008 is acknowledged.

Claim Objections

2. **Claim 81** is objected to because of the following informalities:

In regard to claim 81, the recitations "an the interior heat exchanger" (line 5) is presumed to be -- an interior heat exchanger -- to further clarify the claim limitations.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 81-82, 85-86, 89-90** are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster (US 6,354,097) in view of Wiggs (US 5,946,928).

Schuster teaches a compressor (14), an interior heat exchanger (26), an exterior, sub-surface heat exchanger (16), refrigerant grade tubing connecting the interior heat exchanger (26) and the exterior sub-surface heat exchanger (16) with the compressor (14) (see Fig. 1 and col 3 lines 33-35), a system refrigerant charging the system (col 2 lines 44-53), Schuster explicitly teaches the method and

apparatus of providing a refrigerant with system operational working pressures at least 33% greater than the system operational working pressures of R-22 (col 1, lines 21-32) and using R-104A refrigerant (col 2 lines 12-25) but fails to teach a direct expansion geothermal heat exchange system. Wiggs teaches a direct expansion geothermal heat exchange system (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the refrigerant and working pressures of Schuster with the heat exchange system of Wiggs since the refrigerant advantageously assists in effecting heat transfer (col. 1, lines 26-29).

It should also be noted that the phrase "a direct expansion geothermal heat exchange system" of claim 81, is part of the preamble and does not significantly add to the meets and bounds of the claim and is therefore given limited patentable weight.

5. **Claims 83, 87, 91 and 95** are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster (US 6,354,097) in view of Wiggs (US 5,946,928) in further view of Komatsubara et al. (US 2002/0194862).

Schuster and Wiggs teach the elements of the present invention as described above, but fail to teach providing a polyol ester lubricating oil for the system's compressor. Komatsubara et al. explicitly teach providing polyol ester lubricating oil for a system's compressor (paragraph 0037). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine

the refrigeration system and working pressures of Schuster and Wiggs with the lubricating oil of Komatsubara et al. since polyol ester is an environmentally safe lubricating oil that would prevent seizing of the system compressor.

6. Claims 84, 88 and 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster (US 6,354,097) in view of Wiggs (US 5,946,928) and in further view of Smolinsky (US 6,227,003).

Schuster and Wiggs explicitly teaches the elements of the present invention as described above, but fails to teach a filter dryer. Smolinsky explicitly teaches a filter dryer (60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the refrigeration system and working pressures of Schuster and Wiggs with the filter dryer of Smolinsky since a filter dryer advantageously removes moisture and contaminants from refrigeration systems (col. 5, line 44).

Regarding the phrase "oversized by a factor of at least 10% above the size of filter dryer used in an R-22 based system" of lines 2-3, it would have been obvious to provide a larger filter dryer since the system is operating under increased working pressures and system components must be adapted to accommodate this.

7. Claims 93-94 and 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster (US 6,354,097) in view of Wiggs (US 5,946,928) in further view of Komatsubara et al. (US 2002/0194862) and in further view of Smolinsky (US 6,227,003).

Schuster teaches a compressor (14), an interior heat exchanger (26), an exterior, sub-surface heat exchanger (16), refrigerant grade tubing connecting the interior heat exchanger (26) and the exterior sub-surface heat exchanger (16) with the compressor (14) (see Fig. 1 and col 3 lines 33-35), a system refrigerant charging the system (col 2 lines 44-53), Schuster explicitly teaches the method and apparatus of providing a refrigerant with system operational working pressures at least 33% greater than the system operational working pressures of R-22 (col 1, lines 21-32) and using R-104A refrigerant (col 2 lines 12-25) but fails to teach a direct expansion geothermal heat exchange system. Wiggs teaches a direct expansion geothermal heat exchange system (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the refrigerant and working pressures of Schuster with the heat exchange system of Wiggs since the refrigerant advantageously assists in effecting heat transfer (col. 1, lines 26-29).

It should also be noted that the phrase "a direct expansion geothermal heat exchange system" of claim 46, is part of the preamble and does not significantly add to the meets and bounds of the claim and is therefore given limited patentable weight.

Additionally, Schuster and Wiggs fail to explicitly teach a polyol ester lubricating oil and a filter dryer. Komatsubara et al. explicitly teach providing polyol ester

lubricating oil for a system's compressor (paragraph 0037). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the refrigeration system and working pressures of Schuster and Wiggs with the lubricating oil of Komatsubara et al. since polyol ester is an environmentally safe lubricating oil that would prevent seizing of the system compressor. Smolinsky explicitly teaches a filter dryer (60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the refrigeration system and working pressures of Schuster and Wiggs with the filter dryer of Smolinsky since a filter dryer advantageously removes moisture and contaminants from refrigeration systems (col. 5, line 44). Regarding the phrase "oversized by a factor of at least 10% above the size of filter dryer used in an R-22 based system" of lines 2-3, it would have been obvious to provide a larger filter dryer since the system is operating under increased working pressures and system components must be adapted to accommodate this.

Response to Arguments

8. Applicant's arguments filed 12/7/07 have been fully considered but they are not persuasive. The Applicant argues that withdrawn claims 46-50 and 77-80 are allowable over the cited prior art of Schuster and Wiggs claiming they fail to teach that components are configured to withstand a system operational pressure at least 33% greater than a working pressure of R-22 refrigerant. However, as Schuster cites that R-410A is used, which has an operational pressure 70% higher than R-22, it is obvious

that a system using a refrigerant with a higher operating pressure is capable of operating at an elevated pressure to contain and properly utilize the refrigerant. Additionally, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitation. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Additionally, it is obvious to one of ordinary skill in to use the compressor with the polyol ester lubricating oil as taught by Komatsubara in the system as taught by Schuster. The Applicant contends that Komatsubara is a different type of system than that being claimed by the Applicant and as that being taught by Schuster with different features. However, the teaching of Komatsubara is solely in reference to the compressor and not for teaching other elements of the system. As such, it would be obvious to one of ordinary skill in the art to replace the type of compressor used in a heat exchange system with one that uses a more environmentally friendly lubricating oil.

Additionally, the Applicant argues that Smolinsky fails to teach the filter dryer is oversized by at least 10%. However, Smolinsky clearly discloses the filter dryer except for the oversized by at least 10%. It would have been obvious matter of design choice to change the size of the dryer filter since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Iris Nalven whose telephone number is 571-272-3045. The examiner can normally be reached on Monday - Thursday 8 AM - 5:30 PM and on alternate Fridays 8 AM - 4:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisors, Cheryl J. Tyler can be reached on 571-272-4834 or Frantz Jules can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Emily Iris Nalven/

June 2, 2008

/Frantz F. Jules/

Supervisory Patent Examiner, Art Unit 3744